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Financial reports and audited financial statements and reports of the Board of Auditors

Note by the Secretary-General

I have the honour to transmit to the members of the General Assembly, pursuant to a request of the Advisory Committee on Administrative and Budgetary Questions, the report of the Board of Auditors on all aspects of its updated special audit of the Integrated Management Information System project (see annex).

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Annex

Report of the Board of Auditors to the General Assembly on the updated special audit of the Integrated Management Information system

Letters of transmittal

Letter dated 10 December 1997 from the Chairman of the Board of Auditors to the Secretary-General of the United Nations

I have the honour to transmit to you the following documents:

(a) The report of the Board of Auditors to the General Assembly on the audit of the Integrated Management Information System in accordance with General Assembly resolution 51/225 of 16 May 1997 and the report of the Advisory Committee on Administrative and Budgetary Questions of 22 October 1996 (A/51/533, para. 47); and

(b) The letter of transmittal to the President of the General Assembly.

(*Signed*) Sir John **Bourn**
Comptroller and Auditor General of the United Kingdom of Great Britain and Northern Ireland and Chairman, United Nations Board of Auditors

Letter dated 10 December 1997 from the Chairman of the Board of Auditors to the President of the General Assembly

I have the honour to present to you the report of the Board of Auditors to the General Assembly on the audit of the Integrated Management Information System in accordance with General Assembly resolution 51/225 of 16 May 1997 and the report of the Advisory Committee on Administrative and Budgetary Questions of 22 October 1996 (A/51/533, para. 47).

(*Signed*) Sir John **Bourn**
Comptroller and Auditor General of the United Kingdom of Great Britain and Northern Ireland and Chairman, United Nations Board of Auditors

Summary

The Integrated Management Information System (IMIS) project, launched in 1988, is complex and challenging and is intended to provide a computerized management information system across the whole Organization, with links to the several funds and programmes. The Board of Auditors carried out a special audit of the IMIS project at United Nations Headquarters.

The main findings are as follows:

(a) The project, initially estimated to cost $28 million (1988 estimates), was reprogrammed and rebudgeted in 1994 and is expected to cost $76 million (1994 estimates), against which $55.85 million had been spent as at 31 October 1997. A contractor was engaged in May 1991 to develop IMIS at a total price of $17 million; by 1996, after 13 amendments, the price had increased to $34.5 million. The Administration attributed the increase to the evolution of requirements, as well as to implementation support, training and maintenance not originally foreseen;

(b) The project, initially expected to be completed at Headquarters by January 1994, is now expected to be completed after July 1998. The Administration paid $2.59 million to the IMIS contractor on account of delays attributed to the United Nations;

(c) The project is being developed in stages, known as releases. Of the three releases launched so far, Release 1, covering personnel actions, and Release 3, covering financial and support service applications, are operating, while Release 2, covering staff entitlements, had to be turned off in October 1996, 18 months after it was launched. Release 4, intended to cover payroll, personal insurance management and time and attendance records, was still under development at the time of the audit. The Administration had earlier abandoned its plans for Release 5, which was intended to cover budget formulation;

(d) Although new tasks had been added to the IMIS contract, the list of deliverables had not been updated since September 1994, and the work plan was not updated after March 1995. As a result, the Administration was unable to use the list of deliverables and the work plan to monitor the implementation of IMIS;

(e) The Administration contracted out tasks that it should have performed itself, such as data cleaning and the operation of the Help Desk, which increased unduly the dependence of the Organization on the IMIS contractor;

(f) The Board was pleased to note that the Administration had established a configuration support system to allow users to record problems related to all the releases and to enable the Administration to monitor the status of resolution of those problems. There was also a sound framework for enforcing security of access and execution of administrative events, as well as an effective audit trail.

The main recommendations are that the Administration:

(a) Draw up a comprehensive plan of action indicating the time schedules and resources needed to resolve all outstanding problems generated in IMIS;

(b) Analyse the reasons Release 2 did not work and formulate a timetable for activating the system;

(c) Amend the IMIS contract to update the list of deliverables and the work plan and use them to monitor payments and deliverables;

(d) Secure adequate in-house expertise on the logic, hard codes and other technical features of the system and deploy sufficient qualified manpower in order to reduce dependence on the IMIS contractor;

(e) Develop a comprehensive reporting system to meet the processing requirements of different users for regular retrieval of information, thereby minimizing the necessity for ad hoc queries on the database.

The Administration informed the Board that as at November 1997, IMIS provided for 850 transaction screens, 3,800 help screens and the full integration of human resources, finance and support-service functions; it was intended to be installed at 11 locations worldwide; more than 320 users accessed the system daily at Headquarters; and there were more than 1,200 users and 2 million administrative events at Headquarters in the first 10 months of 1997.

The Organization also needs to take action to rectify system errors in the releases, and to improve the reporting system in IMIS in general and in Release 3 in particular, to facilitate the preparation of financial statements. The Administration also needs to give priority to developing and implementing a plan for the long-term maintenance of IMIS.

The Board encourages the Administration to address the issues raised in the present report to enable the project to achieve its full potential.

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I. Introduction

1. In its report of 22 October 1996 (A/51/533), the Advisory Committee on Administrative and Budgetary Questions recalled that pursuant to General Assembly decision 48/492 of 14 July 1994, the Board of Auditors had carried out a special audit of the Integrated Management Information System (IMIS) project. The results of that audit were transmitted to the Assembly in document A/49/680. In paragraph 47 of document A/51/533, the Advisory Committee made reference to its request that the Board carry out an updated special audit on all aspects of the project, including cumulative and projected costs, long-term maintenance and client support, with a view to reporting its findings to the Assembly at its fifty-second session.

2. The Board's previous report to the General Assembly of 21 November 1994 on the IMIS project (A/49/680) addressed the status of project management and cost-control issues. Release 1, covering personnel actions, was launched at United Nations Headquarters in September 1993. Release 2, covering staff entitlements, was launched in April 1995, but had to be turned off in October 1996. Release 3, covering financial and support service applications, was launched in April 1996. The travel application, which originally formed part of Release 3, was implemented separately in August 1997. Release 4, which was still under development at the time of the Board's audit, was expected to cover payroll, personal insurance management and time and attendance records.

3. In accordance with the request of the Advisory Committee, the special audit of IMIS focused on the following at United Nations Headquarters:

(a) Implementation of Releases 1, 2 and 3;

(b) Project management, including time and cost overruns;

(c) Long-term maintenance;

(d) Retrieval of information and client support;

(e) Security environment.

4. The Board's observations on all matters contained in the present report were communicated to the Administration. The Administration has confirmed the facts on which the Board's observations and conclusions are based and has provided explanations and answers to the Board's queries.

5. A summary of main recommendations and findings is reported in paragraphs 7 to 24. The detailed audit findings are reported in paragraphs 25 to 96.

6. The Board has reviewed the measures taken by the Administration to implement the recommendations made in its 1994 report. Details of the action taken and the comments of the Board are contained in the appendix to the present report.

A. Summary of recommendations

7. The Board recommends that the Administration:

(a) Draw up a plan of action for completion of the personnel-related tables in the database within a specified time-frame and periodically review the accuracy of the data (para. 32);

(b) Analyse the reasons Release 2 did not work, draw up a plan of action to enable Release 2 to align with the staff entitlement rules and formulate a timetable for activating the system (para. 38);

(c) Expedite development of a formal set of diagnostic tools to improve the quality and reliability of data recorded in IMIS (para. 48);

(d) Treat as high priority the development of regular reports in IMIS to facilitate the preparation of financial statements, in addition to resolving data integrity problems (para. 53);

(e) Draw up a comprehensive plan of action indicating time schedules and the resources needed to resolve all the outstanding problems generated in IMIS (para. 59);

(f) Amend the IMIS contract to update the list of deliverables and the work plan and use them to monitor payments and deliverables (para. 66);

(g) Clearly define system enhancement requests in order to ensure that the contractor bears due responsibility for carrying out work that is within the scope of the contract (para. 73);

(h) Secure adequate in-house expertise on the logic, hard codes and other technical features of the system in order to reduce dependence on the IMIS contractor (para. 75);

(i) Deploy sufficient qualified manpower to develop in-house capacity to manage the system (para. 81);

(j) Regard as high priority the full implementation of the long-term maintenance plan of IMIS, which should take into account the requirements and responsibilities of user offices (para. 85);

(k) Overhaul the existing IMIS reporting facility application to make the extract tables easier to use and develop a comprehensive reporting system to meet the requirements of different users for regular retrieval of information, thereby minimizing the necessity for ad hoc queries on the database (para. 92).

B. Summary of findings

1. Implementation of IMIS

8. The IMIS project, which was estimated in December 1988 to cost $28 million, was reprogrammed and rebudgeted in 1994 and the estimate was revised to $76 million; the expected date for implementing the system at Headquarters slipped from January 1994 to after July 1998 (see para. 25).

9. Several of the personnel-related tables in the database either had no data or had incomplete or incorrect data (see para. 28).

10. Although Release 2 was officially launched in April 1995, the information generated by the system was never used for actual payment of entitlements, and Release 2 had to be turned off 18 months later due to performance and other problems. There had been inadequate study of the system requirements and staff entitlement rules, resulting in inadequate specifications. Release 2 was not completely ready when it was launched in April 1995 (see paras. 33 and 37).

11. There were several errors and inconsistencies that could undermine the effectiveness of Release 3 as a financial application and affect its ability to generate accurate financial information for the preparation of financial statements. Such errors represented arithmetical inaccuracies generated out of the system, which, as a result, did not meet basic accounting requirements (see paras. 43 and 44).

12. There was no formal built-in mechanism to detect discrepancies arising from errors in IMIS (see para. 44).

13. The problems of data conversion and IMIS system errors contributed to substantial delays in the production of financial statements. Information required for the preparation of financial statements was not available through regular reports, and the Administration had to rely largely on ad hoc queries to retrieve the required information (see paras. 49 and 52).

2. Monitoring of problems

14. The Board noted that the Administration had established a configuration support system that allowed the users to record problems related to all releases of IMIS and that provided a means of monitoring the status of resolution of those problems (see para. 54).

15. As at 30 at June 1997, 11,187 problems had been recorded in the system since its inception, of which 9,090 had been resolved. Of the remaining 2,097 items, the Administration regarded 732 as high-priority items relating to Releases 1, 2 and 3, but there was no comprehensive plan for dealing with them (see paras. 55 and 58).

3. Project management

16. In May 1991, the Administration engaged a contractor on a fixed-price contract to develop IMIS by January 1994 at United Nations Headquarters and by July 1994 in all offices away from Headquarters for a total price of $17.01 million. The contract was amended 13 times, the last time in August 1996, and as at that date it was expected to cost $34.51 million. The Administration informed the Board in December 1997 that the contract had been further amended in August 1997 to provide for an amount of $37.2 million (see para. 60).

17. The list of deliverables was not updated after September 1994, even though new tasks had been added, rendering the list of deliverables irrelevant for the purpose of monitoring the execution of the work. In addition, the work plan could not be used to monitor the implementation of IMIS since it was not updated after March 1995 (see paras. 62 and 63).

18. There was no mechanism to determine whether a change was to be covered under warranty or as an "out-of-scope" item (see para. 70).

19. The Administration contracted out tasks that it should have performed itself, such as data cleaning, the operation of the Help Desk and other implementation-related activities. This increased unduly the dependence of the Organization on the IMIS contractor. In some cases the Administration even allowed the IMIS contractor to be involved in the user review to confirm that the system met the users' requirements. (see para. 74).

20. Deficiencies in the original specifications of IMIS and delays in the acceptance of deliverables because of a shortage of qualified staff contributed to time and cost overruns (see paras. 79 and 80).

21. The Administration paid $2.59 million to the IMIS contractor on account of delays attributed to the United Nations (see para. 82).

4. Long-term maintenance

22. Although in May 1995 the Administration secured the services of the IMIS contractor to make transitional arrangements towards implementation of a long-term maintenance plan, no substantive progress had been made by July 1997 in securing and retaining the seven staff required (see para. 84).

5. Retrieval of information and client support

23. The facilities available within IMIS for information retrieval were not adequate and have adversely affected the stated objective of IMIS of improving the quality and timely availability of financial and personnel data throughout the Organization. The available reports do not meet the full requirements of IMIS users (see paras. 86 and 88).

6. Security environment

24. There was a sound framework for enforcing security of access and execution of administrative events, as well as an effective audit trail (see para. 93).

II. Detailed findings

A. Implementation of IMIS at United Nations Headquarters

1. Introduction

25. The General Assembly approved the implementation of IMIS in December 1988 at an estimated cost of $28 million. The Administration expected the project to be fully implemented at United Nations Headquarters by January 1994. The estimates were revised to $34.39 million and $47.88 million in the programme budgets for the bienniums 1992-1993 and 1994-1995 respectively. However, in 1994 the project was reprogrammed and rebudgeted, and is expected to cost $75.97 million, against which $55.85 million had been spent as at 31 October 1997. The Administration expects the project to be completed after July 1998.

26. The Administration engaged a contractor to provide a fully tested and fully operational management information system, while the United Nations was required to monitor the phased execution of the contract through a set of predefined deliverables that were subject to acceptance by the Administration within prescribed time limits. A steering committee headed by the Under-Secretary-General, Department of Administration and Management, was set up to monitor implementation of the complex project. The Administration informed the Board that as at November 1997, the project included 850 transaction screens, 3,800 help screens and the full integration of human resources, finance and support-service functions; it was installed at 11 locations worldwide; more than 320 users accessed the system daily at Headquarters; and there were more than 1,200 users and 2 million administrative events at Headquarters in the first 10 months of 1997. Although the project was originally conceived with the assumption that it would be implemented in its entirety, the Administration subsequently decided to implement the project in a series of stages, or "releases".

2. Release 1

27. Release 1 was intended to be a personnel information system that contained all particulars of United Nations staff, including information on posts, grades and skills as well as personal and family particulars. It was also intended to cover consultants and vendors.

28. The Board noted that personnel actions were being processed through Release 1. However, no data had been entered in several of the personnel-related tables in the database, for example, tables relating to post assignment, job descriptions, roster of staff and their skills as well as recruitment actions. The Board further noted that a number of tables had incomplete data. For example, in the performance evaluation tables, comments of the reviewing officers were not available in many cases. In some cases the evaluations of reviewing officers as well as reporting officers were missing, thereby defeating the purpose of the table. Moreover, a few tables included incorrect data that the system should have taken care of. For example, 459 individuals in the "person table" were shown simultaneously as staff members and consultants. The Board is of the view that complete and correct information is essential for IMIS to emerge as a sound management information system.

29. The above problems were due to the non-submission of relevant information by the staff members, data errors emanating as a result of the transfer of data and errors generated within the system.

30. The Administration informed the Board that the problem of missing or incomplete data affected only 5 per cent of the personnel-related tables. The Administration stated that it had recently started to enter the missing data, but that the task was complex because of the volume of data to be entered. The Administration expected that it would take several months, resources permitting, to obtain the data to fill in the tables.

31. The Board noted that the United Nations did not have a clear strategy and plan of action to gather the data and complete the tables within a specified time frame. The Board is of the view that until the personnel database is complete and accurate, Release 2 cannot operate at its full potential.

32. The Board recommends that the Administration draw up a plan of action for completion of the tables within a specified time frame and that it also periodically review the accuracy of the data.

3. Release 2

33. Release 2 was meant to allow the user to see the effects of approved personnel actions on staff members' entitlements, based on direct application of the Staff Rules and Regulations. The system was to generate and display an entitlement profile for each staff member selected. Although Release 2 was officially launched in April 1995, the information generated by the system was never used for actual payment of entitlements, and it had to be turned off 18 months later, in October 1996, because of problems in performance, problems relating to some specific entitlements and the unexpected increase of records in the database due to Release 3.

34. The IMIS project team on human resources management had reported in March 1995 that the system contained inaccurate personnel data, such as that pertaining to grade, step, language proficiency and number of dependents, and that errors in IMIS reference tables or in the eligibility and calculation logic could also give rise to incorrect entitlement values. Also, in view of the fact that possible data or system problems might have affected the end results, it decided that initially the entitlements would not be printed on the personnel action forms. The Board noted that when Release 2 was launched in April 1995, the system had not been adequately tested and the data reference tables had not been completed.

35. The Administration told the Board that the system had to be turned off to improve Release 3 response time, which was affected, among other things, by Release 2. Although the Administration informed the Board that there were no other reasons for turning off Release 2, the Board noted that there were performance problems arising from the complexity of the personnel entitlement rules, and that in many cases the users disagreed on how the rules should be interpreted. The Board also noted that the IMIS project team did not formally report to the Steering Committee that Release 2 had been turned off.

36. The Administration informed the Board that it recognized that the United Nations had limited experience in constructing a complex system; moreover, reporting in all areas had rarely been comprehensive, and policies and procedures had been inadequately documented. The Administration had not properly assessed this situation when the IMIS project was launched, which has been the main reason for the problems encountered by the project over the years. The Administration also informed the Board that the new version of Release 2 was scheduled to be implemented in March 1998.

37. The Board considers that Release 2 was not completely ready when it was launched in April 1995, as reflected in particular by the large number of requests (386) for system enhancements that had been recorded as at 30 June 1997. In addition, the Board is of the view that there had been inadequate study of the system requirements and staff entitlement rules resulting in inadequate specifications to begin with, and that the Organization could have been more proactive in settling the issues as they arose.

38. The Board recommends that the Administration analyse the reasons Release 2 did not work, draw up a plan of action enabling Release 2 to align with the staff entitlement rules, and formulate a timetable for activating the system.

4. Release 3

39. Release 3 was intended to cover accounting, financial and travel applications as well as integration with the existing procurement application. The Secretary-General, in his seventh progress report on IMIS, issued in November 1995 (A/C.5/50/35), stated that Release 3 was by far the major component of IMIS and would be implemented, effective mid-January 1996, to run in parallel, until the end of March 1996, when the parallel run would terminate and the system would be deployed to all users. The Secretary-General also stated that it was considered desirable to ensure fully that the system integrated properly. The Board noted that a parallel run was not undertaken as planned, and instead the system went live in April 1996.

40. The Administration informed the Board that the parallel run was de facto replaced by extensive system and integration testing, and testing of Release 3 started in April 1994 with a team of system accountants and staff experienced in systems development and implementation. That team identified deficiencies in the system, including both errors in operations, which were the contractor's responsibility, and problems in application of the system arising from incorrect specifications. That analysis led to the creation of a new task called "user review", which took place between October 1994 and April 1995 and determined that

major changes to Release 3 were required in addition to fixes of the system.

41. Release 3 serves as the sole system for processing and recording accounting and financial transactions at United Nations Headquarters. In order to evaluate the implementation of Release 3, the Board conducted an analysis of the financial data on the IMIS database. The Board also reviewed the conversion control account, which contained data that the Administration could not initially post to the correct account when transferring from the previous systems to IMIS.

42. Whereas the Administration informed the Board that during the course of implementing Release 3 an amount of $42.7 billion represented the overall value of transactions passing through the conversion control account, the Board noted that that amount represented the value of transactions that could not initially be posted to the correct account from the conversion control account. This was mainly due to the inability of the data to pass the controls in IMIS. A net difference of $4.7 million remained outstanding in the conversion control account by July 1997. The Board was concerned that the gross figure behind the net difference of $4.7 million would have an impact on the reliability of the data in the financial statements. The Administration informed the Board that it continued to review the differences in the conversion account and to make adjustments.

43. The Board's test analysis of financial data revealed several errors and inconsistencies that could undermine the effectiveness of IMIS as a financial application and affect its ability to generate accurate financial information for the preparation of financial statements. For example, in respect of four funds, the trial balances in either the ledger or the transaction file did not balance throughout the periods examined; for two funds, the balances in the ledger did not agree with the balances in the transaction file, and there were discrepancies in the data pertaining to allotments recorded in different document tables.

44. The Administration considered that those inconsistencies and discrepancies either arose from data conversion problems or were generated by errors in IMIS. The Administration further stated that while some of the discrepancies arising from IMIS system errors had been identified through ad hoc reports and user analysis, in other cases the reasons for the discrepancies would be investigated. Moreover, it stated that most of those problems were either scheduled to be or had already been fixed. In the Board's opinion, such errors represented arithmetical inaccuracies generated out of the system and did not meet basic accounting requirements. The Board found, and the Administration confirmed, that there was no formal built-in mechanism to detect discrepancies arising from errors in IMIS. The Board if of the view that in the absence of a set of diagnostic tools to provide a formal detection mechanism, it is difficult to see how integrity of the financial data can be assured in IMIS.

45. The Board recommended that the Administration develop a formal set of diagnostic tools to create a built-in mechanism in IMIS to detect data inconsistencies and related problems.

46. In response to the Board's recommendation, the Administration has taken action to formalize existing diagnostic tools and to test prototype diagnostic tools to ensure that:

(a) All funds are in balance;

(b) The ledger posting is the same as that in the originating document;

(c) The summary ledger balance matches the ledger entry.

47. The Administration informed the Board that it had used its prototype diagnostic tools in October and November 1997 to determine that out of 451 funds, 35 were out of balance; in 22 of those the differences were minor, arising from rounding; in 10 cases, the error was related to a data error that was being corrected. According to the Administration, the prototype diagnostic tests also revealed that there were a small number of documents and obligations that did not have matching ledger balances; in one fund, the summary ledger balance differed from the ledger entry by $4,334.

48. The Board recommends that the Administration expedite this process in order to improve the quality and reliability of data recorded in IMIS, and also to ensure the development of reports that are relevant to the users.

B. Preparation of financial statements

49. In accordance with financial regulations, financial statements are required to be submitted not later than 31 March following the end of the financial period for general and related funds and not later than 30 September for United Nations peacekeeping operations. The Board noted that the problems of data conversion and IMIS system errors contributed to substantial delays in the production of financial statements. For instance, the interim financial statements of the United Nations for the periods ended 30 June and 31 December 1996 were finalized only

in September and October 1997 respectively. The Administration expects to complete the financial statements for the period ended 30 June 1997 relating to general and related funds by the end of November 1997. Similarly, financial statements for United Nations peacekeeping operations for the periods ended 30 June 1996 and 30 June 1997 were finalized only in October and November 1997 respectively. No financial statements for the period ended 31 December 1996 were prepared because of the change in the fiscal year for peacekeeping. The Board is of the view that the preparation of accurate and timely financial statements represents an effective test for the functioning of Release 3.

50. The Administration informed the Board that the reasons for delays in the preparation of financial statements were mainly:

(a) A lack of comprehensive reports to provide appropriate categorization of accounts with accurate data, with the result that the Administration had to rely instead on ad hoc queries to obtain that information;

(b) Problems arising from the "bridges" that were developed to transfer data between IMIS and both the offices away from Headquarters and the payroll system at Headquarters. The rejection of transactions by some bridges contributed to the delay in the preparation of financial statements. The problem of rejection was attributable not only to incorrect or incomplete data recorded in the previous system, but also to excessively demanding IMIS control regulations;

(c) The need to stabilize Release 3, which delayed the development of batch processes required for closing the accounts and preparing financial statements;

(d) Problems relating to data conversion and inaccurate data generated within IMIS (as discussed in paras. 43 and 44).

51. The Administration also informed the Board that although 140 identified data problems which were identified that needed to be resolved, many of those problems were immaterial to financial statements or to the integrity of data in the system.

52. The Board was concerned that information required for the preparation of financial statements was not available through regular reports and that the Administration had to rely largely on ad hoc queries to retrieve the required information.

53. The Board, therefore, recommends that the Administration treat as high priority the development of regular reports in IMIS to facilitate the preparation of financial statements, in addition to resolving data integrity problems.

C. Monitoring of problems

54. The Board was pleased to note that the Administration had established a configuration support system for IMIS, which allowed users to record problems related to all releases and also provided a means of monitoring the status of the resolution of those problems. The problems were classified into four categories:

(a) Test problem reports, which cover problems caused by a data error or code error where the IMIS application does not correspond to the original specifications or does not provide the required function;

(b) System enhancement requests, which cover requests for changes to enhance a previously defined function or to add a new function;

(c) Issues that require further discussion and administrative clarifications and decisions;

(d) Work flow problems relating to the way in which various existing or planned functions are distributed among users.

55. The Board noted that as at 30 June 1997, a total of 11,187 items had been recorded in the configuration support system since its inception, and of those 9,090 had been resolved. Of the remaining 2,097 items, the Administration regarded as high priority 63 items relating to Release 1, 113 relating to Release 2 and 556 relating to Release 3.

56. The Administration informed the Board that a large number of the unresolved items might no longer be valid, since until June 1997 items were not closed automatically upon resolution. The Administration indicated that it was aware of the need for a full review of each item to determine the number of valid outstanding items.

57. The Administration also indicated that it had established a plan to address the most important test problem reports and enhancement requests in Release 3, but that it had been suspended owing to the need to divert staff to tasks connected with the preparation of financial statements. The plans provided for the completion of the entitlements, education grants and travel claims by the end of November 1997 and the travel claim reports by the end of February 1998.

58. The Board was concerned that the Administration had yet to resolve 732 items relating to Releases 1, 2 and 3, classified as high priority, and that there was no

comprehensive plan for dealing with those and other outstanding items.

59. The Board recommends that the Administration draw up a comprehensive plan of action indicating time schedules and the resources needed to resolve all the outstanding problems generated in IMIS.

D. Project management

1. IMIS contract

60. In May 1991, the Administration engaged a contractor on a fixed-price contract to develop IMIS by January 1994 at United Nations Headquarters and by July 1994 in all offices away from Headquarters for a total price of $17.01 million. The contract was amended 13 times, the last time in August 1996, and at that time it was expected to cost $34.51 million. The Administration informed the Board that the initial specifications had represented its knowledge at the time; however, owing to the evolution of requirements through the analytical process for developing the system, the system as it then stood was much different from what had been specified in the initial contract. The Administration further informed the Board, in December 1997, that the contract had been further amended in August 1997 to provide for an amount of $37.2 million.

61. The contract provided for the Administration to monitor the phased execution of the contract through a set of predefined deliverables. A detailed work plan fixing the time schedules for the execution of those deliverables formed an essential part of the contract.

62. The Board noted that the Administration had not updated the list of deliverables after the adoption of Amendment 6, which it had signed in September 1994, even though it had subsequently added new tasks to the contract and had dropped several major sections, such as Release 5, relating to budget formulation. In addition, the Administration did not add to the list of deliverables such items as the enhancement requests and task orders, which were being handled by the contractor as a result of later amendments. Accordingly, the Board is of the view that the list of deliverables was rendered irrelevant, and that there was no baseline against which the Organization could monitor the execution of the contract.

63. The Board also noted that the work plan could not be used to monitor the progress of the implementation of IMIS since it was not changed after March 1995, when Amendment 8 to the contract was signed. As a result, by the time Amendment 13 was signed in August 1996, the work plan was outdated and of little practical use. For example, for Release 4, although the coding and testing had not started by July 1997, its target date for completion remained January 1995 in the work plan.

64. The IMIS contract sets a maximum time and an hourly rate to be paid for each deliverable. The Organization is not required to compensate the contractor for additional time spent in excess of the maximum, unless it is due to system enhancements or delays on the part of the Organization. In accordance with the contract, payment for each stage should be made after it has been certified that the work included in that stage has been satisfactorily completed and all relevant major deliverables have been accepted. Since deliverables were left undefined and the work plan was outdated, the character of the contract changed substantially. As there was no baseline list of deliverables, there was no possibility of their being checked before payments were made. Thus the Administration had settled the invoices of the contractor only on the basis of the number of hours claimed, according to the attendance log maintained by the Administration and after ensuring that the payment was within the overall monetary limit specified in the contract.

65. The Administration explained that the contract had originally been drafted on the assumption that the project would be implemented in its entirety and not by releases. The Administration agreed on the need to review the way in which payments were made, but added that an amendment to the contract in 1994 provided for 10 per cent to be held back and released upon satisfactory verification of deliverables. It also stated that the Organization held a performance bond from the contractor in the amount of $1.7 million. While the Board appreciates the various constraints in implementing the project, it is of the view that the retention of partial payment does not provide an effective substitute for verifying payments against deliverables.

66. The Board recommends that the Administration amend the IMIS contract to update the list of deliverables and the work plan and use them to monitor payments and deliverables.

2. Changes and out-of-scope work

67. Under the contract, any change or work outside the scope of the contract is to be authorized by the Administration after a cost-benefit analysis has been performed and after the impact of change on the development process itself has been assessed.

68. The Board examined the system enhancement requests relating to Release 2. Unlike the test problem reports, which were to be rectified by the IMIS contractor within the

contract price, the system enhancement requests were outside the scope of the contract and an additional amount was paid for them. The Board's review of some system enhancement requests revealed that many of them did not call for any additional function but were the result of errors in logic of the existing function and, therefore, in the Board's view should not have been treated as system enhancements. The Board, therefore, is of the view that no additional payment should have been made for such work. The Board could not compute the amount of additional payment made in such cases since the system enhancement requests were not related to any deliverable.

69. The Administration informed the Board that the classification of changes as within or outside the scope of the contract was determined not by the addition of a function, but by the conformity of the product with the specifications required.

70. The Board noted that although an issues committee was operating in the later stages of the project, there was no mechanism to separate the issues from enhancements or to determine whether a change was to be covered under warranty or as an out-of-scope item. The Board noted that an internal study commissioned by the Administration concluded that out of 214 changes made in Release 3, which were accepted as enhancements and paid for accordingly, 199 changes were made to correct errors that should have been covered under the warranty.

71. The Administration informed the Board that it classified the type of change after a careful review. It used the results of the internal study referred to above to open negotiations with the contractor to determine how responsibility would be shared by the contractor and the Organization. It had concentrated on stabilizing the system and was of the view that the contractor had consistently absorbed hours without billing for them; moreover, it believed that it had sufficient leverage through the retention of payment to the contractor.

72. The Board considers that the lack of a proper evaluation of whether changes were within or outside the scope of the contract rendered the Organization vulnerable to claims from the IMIS contractor for additional payment. In addition, in view of the fact that the contractor was the only party fully aware of the logic, hard codes and other technical features of the system, the United Nations might not be well-placed to negotiate on equal terms regarding responsibility for carrying out the changes.

73. The Board recommends that the Administration clearly define system enhancement requests in order to ensure that the contractor bears due responsibility for carrying out work that is within the scope of the contract.

3. The need to acquire adequate in-house expertise

74. The Board noted that the Administration contracted out tasks that it should have performed itself, such as data cleaning, the operation of the Help Desk and other implementation-related activities. The Board considers that this increased unduly the dependence of the Organization on the IMIS contractor. In some cases, the Administration even allowed the IMIS contractor to be involved in the user review, which should more appropriately be undertaken by users to confirm that the system met their requirements.

75. The Board recommends that the Administration address the need to secure adequate in-house expertise on the logic, hard codes and other technical features of the system in order to reduce dependence on the IMIS contractor.

4. Time and cost overrun

76. In 1988, the General Assembly approved $28 million as the estimated cost for the IMIS project. Costs of training, implementation support and maintenance were not foreseen in the original budget of the project. The estimated cost was revised to $34.39 million (1992-1993) and to $47.88 million (1994-1995). However, in 1994 the project was reprogrammed and rebudgeted to provide an overall budget of $75.97 million. (That figure reflects the cost before a $800,000 reduction was made as an economy measure.)

77. The IMIS contract price increased from $17.01 million in 1988 to $34.51 million in 1994. That amount is subject to further revision after taking into account the additional cost of system enhancement requests. An analysis of the increase in cost of $17.50 million is provided in the following table. That amount includes $7.85 million for training, implementation support and maintenance that was not included in the original estimate.

78. The Board noted that under the original contract, the project was scheduled to be completed in January 1994 at United Nations Headquarters and in July 1994 in offices away from Headquarters. This plan underwent several revisions, and as at July 1997, significant work needed to be done before the whole project could be considered fully operational. Those delays contributed to the significant cost increases incurred on the project.

79. The Board is of the view that the time and cost overruns were partially due to deficiencies in the original specifications of IMIS when the system was conceived. The

Administration contended that the specifications were based on substantial consultation with a large number of users. It agreed, however, that it had misjudged the complexities and magnitude of the administrative operations.

Net increase in the cost of the IMIS contract

(in millions of United States dollars)

Item	*Cost*
Increase in cost of Release 1 construction	1.30
Increase in cost of Release 2 construction	1.19
Training	2.13
Out-of-scope items	3.97
Implementation support	3.19
Delays	2.59
Task orders	2.45
Maintenance	2.53
Others/miscellaneous	1.14
Total	20.49
Less credit on account of rescoping of the project	2.99
Net increase in cost	17.50

80. The Board believes that another reason for the time and cost overruns was failure by the Administration to deploy sufficient qualified manpower, leading to a delay in the acceptance of deliverables by the Organization.

81. The Board recommends that the Administration deploy sufficient qualified manpower to develop in-house capacity to manage the system.

82. The Board noted that the Administration paid $2.59 million to the IMIS contractor as compensation for delays attributed to the United Nations. When the contract was renegotiated in March 1995, the IMIS contractor accepted 25 per cent of the responsibility for the delays and requested the United Nations to compensate it for the rest of the delay in executing the project. However, neither was the delay analysed nor were any remedial measures taken. The settlement was based on the assumption that the entire project would be completed by July 1995, a deadline which has since been further extended.

E. Long-term maintenance of IMIS

83. The Administration had initiated action to develop a long-term maintenance plan by obtaining the services of a consultant to undertake a special study. In February 1995, the consultant recommended the establishment of the following:

(a) A central IMIS maintenance unit to oversee customer support, release development and maintenance, technical support and administrative functions;

(b) A new methods and procedures unit to study administrative procedures and to develop and implement a communication plan to advise and train United Nations administrative staff;

(c) Systems coordinators within policy and systems units to monitor the use of IMIS and to coordinate IMIS table maintenance;

(d) An IMIS control board for maintaining control over demands for system changes by assessing the merits of major enhancement requests against established criteria.

84. The Steering Committee did not take any decision on whether to implement the special study. In May 1995, the Administration secured the services of the IMIS contractor to make transitional arrangements for the maintenance of IMIS. Those arrangements provided for the IMIS contractor to hire seven staff for eventual recruitment by the United Nations to facilitate the transition of the maintenance function from the IMIS contractor to the Organization. The Board, however, noted that the job descriptions of the proposed staff suggested only the required qualifications and not the nature of the duties required to be performed, and that by July 1997 no substantive progress had been made in securing the seven staff required to implement the maintenance plan. The Administration informed the Board that it expected the maintenance group of the IMIS contractor to become operational only towards the beginning of 1998 on account of other priorities, for example, support of Release 3. The Administration further informed the Board that it had been difficult to identify sufficiently qualified candidates and that the financial situation of the Organization had hampered the Organization's efforts, which were still ongoing and considered a priority.

85. The Board recommends that the Administration regard as high priority the full implementation of the long-term maintenance plan of IMIS, which should take into account the requirements and responsibilities of user offices.

F. Retrieval of information from IMIS and client support

86. With the implementation of Release 1 (personnel applications) and Release 3 (financial and support service applications), IMIS has emerged as a major transaction processing system. Both personnel actions and financial and accounting transactions are now routed through IMIS and this has led to IMIS becoming a major repository of personnel and accounting information. However, the Board is of the view that the facilities available within IMIS for retrieval of such information are not adequate and have significantly affected the stated objective of IMIS of improving the quality and timely availability of financial and personnel data throughout the Organization.

87. The Administration established an IMIS reporting facility application involving the use of extract tables created from the production database and provided separately to users. In addition to the IMIS reporting facility application, a few users have been allowed direct access to a copy of the IMIS database, which enables them to generate ad hoc queries and reports directly from IMIS data rather than from the extracts.

88. The Board is of the view that a significant weakness in the IMIS reporting facility application is that the available reports do not meet the full requirements of IMIS users. The Board's review of the 22 standard financial reports available through the IMIS reporting facility application revealed that they were only copies of corresponding tables in the parent database, and the Administration had not modified the structure of the extract tables or developed selective extract tables to take account of the requirements of the users.

89. The Board noted that the Administration had created only one extract table each for the ledger balance and account ledger entry tables, which were the two key, and the largest, tables in the main database for financial data. Those extract tables provided the only access to the IMIS database for the users. The Board is of the view that the complexity of such large extracts makes the generation of reports out of the extract tables time-consuming for the users.

90. The Board noted that since the IMIS reporting facility application did not have adequate facilities for data processing, the users were heavily dependent on a limited number of technically competent staff to retrieve data. This arrangement was unstructured, individual-dependent and therefore untenable in the long run. The Board also noted that the absence of adequate reporting facilities limited the value of IMIS as a management tool.

91. The Administration stated that the IMIS reporting facility application had been developed with the intention of giving access to a large number of users who had not previously had access. It also stated that the number of standard financial reports had increased to 57 by November 1997. The Board is of the view that while the IMIS reporting facility application has afforded a larger number of users access to the data available in the IMIS database, it does not process the information; users are therefore compelled to process the data themselves. This requires technical competence that all users may not possess.

92. The Board recommends that the Administration overhaul the existing IMIS reporting facility application to make the extract tables easier to use and develop a comprehensive reporting system to meet the processing requirements of different users for regular retrieval of information, thereby minimizing the necessity for ad hoc queries on the database.

G. Security environment of IMIS

93. The Board reviewed the security of IMIS information systems at United Nations Headquarters and found that there was a sound framework for enforcing security of access and execution of administrative events, as well as an effective audit trail. However, the Board found a few instances of security gaps, concerning, for example, expiry dates of user identification designations, expiry dates for access to the system and some omissions in specifying currency codes in relation to financial limits for the execution of transactions.

94. In its report on the United Nations for the financial period ended 31 December 1993, the Board had recommended that the Administration undertake an information systems risk analysis. The Administration indicated that a formal risk analysis would require significant human and financial resources that were not available.

95. The Board noted that in October 1997 the Administration prepared an information systems security policy, contained in its Information Systems Security Manual, but that it had not been approved by the Steering Committee as at October 1997.

96. The Board recommends that the Administration obtain the requisite approvals for the information systems security policy and implement it soon.

III. Acknowledgement

97. The Board of Auditors wishes to express its appreciation for the cooperation and assistance extended by the Secretary-General, his officers and the members of his staff.

(*Signed*) Sir John **Bourn**, KCB
Comptroller and Auditor General
of the United Kingdom of Great Britain and
Northern Ireland

(*Signed*) Osei Tutu **Prempeh**
Auditor General of Ghana

(*Signed*) Vijay Krishna **Shunglu**
Comptroller and Auditor General of India

Appendix

Follow-up on action taken to implement the recommendations of the Board of Auditors contained in its special audit report of 1994 (document A/49/680, para. 7)

Recommendation contained in paragraph 7 (a) (i)

1. The implementation plan should be amplified to include a detailed allocation of resources to tasks and should be synchronized with the contractor's plans for software development, testing and other areas. The shortages and conflicts of United Nations staff resources identified as a result should be resolved expeditiously. An implementation coordinator on the IMIS development team and implementation teams in user departments should receive priority for staffing.

Measures taken by the Administration

2. The implementation plan was amplified to include the United Nations and contractor's tasks. The coordination of the task was undertaken by a joint Office of Programme Planning, Budget and Accounts/IMIS staff/contractor team. For implementation of Release 3, a dedicated implementation team was created within the Office. It was difficult to assign adequate resources because of budgetary constraints. However, all available references plus additional funding were provided to the Office for implementation activities. For the future, especially for Release 4, the Administration will ensure that the implementation teams are set up and adequately staffed to ensure a smooth implementation.

Comments of the Board

3. As indicated in paragraphs 62 to 65 of the present report, the work plan had been rendered totally out of date; neither the list of deliverables nor the corresponding time schedules had been updated since September 1994. Also, several tasks, such as data cleaning, operation of the Help Desk, other implementation-related activities and even user review, which should have been performed by the Organization, were performed by the IMIS contractor. The Board recommends that the list of deliverables and the work plan be updated and used to monitor payments as well as deliverables.

Recommendation contained in paragraph 7 (a) (ii)

4. The Steering Committee should devise a mechanism to speed up implementation-related decisions and actively monitor progress with reference to the implementation plan.

Measures taken by the Administration

5. The implementation plan was regularly submitted to the Steering Committee, and a new format of activities report was circulated regularly identifying difficulties and issues.

Comments of the Board

6. While the Board noted that the Steering Committee had been meeting more frequently than in the past, it also noticed, for example, that the turning off of Release 2 had not been formally reported to the Committee (see para. 35 of the present report). In subsequent audits, the Board will continue to review the monitoring of progress in implementation by the Steering Committee.

Recommendation contained in paragraph 7 (a) (iii)

7. Offices away from Headquarters should be surveyed immediately to assess their technical infrastructure, the availability of electronic data-processing skills related to IMIS and the extent and quality of data available for conversion to IMIS. The survey is essential for fine-tuning the implementation plan to suit the needs and capabilities of individual offices away from Headquarters.

Measures taken by the Administration

8. A technical survey was conducted in early 1995. Each duty station embarked on the upgrade of the technical infrastructure, but that work took longer than expected. Infrastructure work is still under way at many duty stations, although the Administration was able to implement IMIS Release 1 at all duty stations. IMIS operates satisfactorily at all the duty stations where it has been implemented. It

should be noted that the infrastructure work is essential for many applications, IMIS being only one of them.

Comments of the Board

9. The Board has taken note of the conduct of surveys at offices away from Headquarters, and will review the implementation of IMIS at those stations at a later date, ideally when Release 3 is implemented.

Recommendation contained in paragraph 7 (a) (iv)

10. The Electronic Services Division of the Secretariat should ensure that the procurement policy for personal computers at offices away from Headquarters is in harmony with their requirements for IMIS-compatible personal computers.

Measures taken by the Administration

11. The Information Technology Services Division and the IMIS team jointly advised all offices and no problems were encountered in this area.

Comments of the Board

12. This will be examined by the Board when it reviews implementation of IMIS at offices away from Headquarters.

Recommendation contained in paragraph 7 (b) (i)

13. The project estimate should be increased by $1.6 million to $71.7 million to rectify discrepancies in the estimates incorporated in the sixth progress report of the Secretary-General (A/C.5/48/12/Add.1).

Measures taken by the Administration

14. This was implemented with the budget for the biennium 1996-1997.

Comments of the Board

15. The Board has noted the increase in the cost estimate. However, significant work still must be done before the whole project can be considered fully operational; this estimate, especially the element of contractual services, might increase further, in view of the outstanding problems that need to be resolved (see para. 78 of the present report).

Recommendation contained in paragraph 7 (b) (ii)

16. The estimates relating to implementation at offices away from Headquarters, except those relating to survey and installation tasks, should be revised after the proposed survey has been conducted.

Measures taken by the Administration

17. The project estimates have been adjusted on the basis of the experience gained at Headquarters. Additional resources are being identified to assist offices away from Headquarters in implementing Releases 3 and 4 with the support of the IMIS team at Headquarters.

Comments of the Board

18. The Board will examine these estimates while reviewing the implementation of IMIS at offices away from Headquarters.

Recommendation contained in paragraph 7 (b) (iii)

19. The feasibility of assigning United Nations staff to maintenance and implementation tasks, especially for conducting training courses, in preference to retaining contractual services, should be explored, as in-house implementation and maintenance support will be more cost-effective than contractually supplied services. Further, implementation support staff should be identified, trained and positioned in time.

Measures taken by the Administration

20. Most of the training activities have been undertaken by United Nations staff, both at Headquarters and at offices away from Headquarters. This is the strategy foreseen for the implementation of Releases 3 and 4. Implementation support staff were identified and assigned by the Office of Programme Planning, Budget and Accounts and Support Services to support Release 3 implementation.

Comments of the Board

21. The Board is concerned that several tasks like data cleaning, operation of the Help Desk and other implementation-related activities, which should have been performed by the Organization, have been performed by the IMIS contractor, and that the Organization is unduly

dependent on the contractor for such activities. The Board recommends that tasks such as administering the database and staffing the Help Desk should be taken over by the Organization as soon as possible and that the necessary resources be provided for this (see para. 74 of the present report).

Recommendation contained in paragraph 7 (b) (iv)

22. User review of Release 3 (accounting) development should be completed quickly and requests for changes monitored carefully to avoid further delays and costs. Similar action for Release 4 (payroll) should be expedited. In particular, requirements of essential reports for all releases should be identified quickly to avoid structural adjustments to the software later, which would be costly.

Measures taken by the Administration

23. The user review of Release 3 was conducted during the system testing phase on the basis of the various issues and problems identified in the programs, and requests for changes were recorded in a dedicated database. All the requests for changes recorded in the database are reviewed and priorities established by the Issues Committee, which is composed of IMIS project staff, Office of Programme Planning, Budget and Accounts staff and the contractor. Similar actions will be followed for Release 4 to ensure that changes are well-documented and the user review is conducted on a timely basis. Reporting requirements for Release 1, 2 and 3 have been identified and are being identified for Release 4. These are assigned to a team dedicated to addressing the changes to the report and the development of new ones that are essential. So far no structural adjustments have been identified, but additional work is still ongoing.

Comments of the Board

24. The Board noted with concern that in some cases user review was performed by the IMIS contractor. While the Board has taken note of the recording of requests for change and other problems in the configuration support system, it is concerned at the large number of outstanding high-priority items and the absence of a comprehensive plan for dealing with them (see paras. 58 and 59). As regards reporting requirements, the Board noted that the facilities available within IMIS for information retrieval were still not adequate and that available reports did not meet the full requirements of IMIS users (see paras. 86 and 88).

Recommendation contained in paragraph 7 (b) (v)

25. The project development team should be allowed to concentrate on its activities by avoiding diversion to implementation-related activities. The Project Chief should be given adequate administrative support to monitor the software development contract closely, without detriment to the management of IMIS development.

Measures taken by the Administration

26. Because of the difficulties of the transition, the project development team continued to be involved in implementation and operational activities. An administrative officer was assigned to the team. The volume of tasks undertaken and to be monitored exceed, however, the capabilities of the team and of its administrative support staff.

Comments of the Board

27. In view of the Administration's response, the Board reiterates its earlier recommendations regarding both project development and administrative support, especially in view of its concerns regarding contract management.

Recommendation contained in paragraph 7 (b) (vi)

28. The task order method, incorporated in the second contract through Amendment 8, should be used for out-of-scope items and not for implementation-related activities.

Measures taken by the Administration

29. The task order method was partially used also for implementation-related activities. As recommended by the Board during the recent audit of the project, an amendment to the contract will be issued to define better the amount of work remaining under the base contract and the implementation-related tasks that the IMIS contractor may still be required to perform.

Comments of the Board

30. The Board remains concerned at the use of task orders for implementation-related activities and recommends that the renegotiated and amended contract include an updated list of deliverables (including implementation-related activities) as well as an updated work plan.

Recommendation contained in paragraph 7 (c)

31. In order to realize the benefits from IMIS, the phasing out of existing systems that it is expected to replace should be planned and synchronized with its implementation.

Measures taken by the Administration

32. Most of the Headquarters systems can be phased out only upon completion of implementation at offices away from Headquarters. This is the reason bridges and interfaces were built. Planning is under way to progressively phase out human resources systems after the implementation of Release 1 in Beirut. The phasing out of financial systems is planned for the beginning of 1999.

Comments of the Board

33. The Board agrees with the Administration that most of the Headquarters systems can be phased out only after IMIS has been implemented at offices away from Headquarters. The Board will examine that issue while reviewing the implementation of IMIS at other duty stations.